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ABSTRACT

While few would disagree that token economies are effective in bringing certain positive and negative target behaviors under contingent control, the recent past has witnessed increased concern over choice of targets as well as back-ups, voluntary versus involuntary client participation, as well as the effectiveness of such programs in meeting client versus staff needs. Within the latter category, reviewers of the token economy literature (e.g., Kazdin & Bootzin, 1972) have suggested that behaviors instigated within token economy mechanisms rarely generalize to alternative conditions, and this issue of generalization is perhaps one of the major criticisms of the token format. The present paper attempts to define and examine generalization in the light of recent research. Within the presentation, the author integrates certain of his own findings and personal speculations as the various methods and issues for examining generalization are presented. (Author)

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GENERALIZATION WITHIN THE TOKEN ECONOMY FORMAT: METHODS AND ISSUES[1]

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In recent years generalized reinforcers have been so frequently employed within institutional settings as to be a given within many state and local agencies. The token economy approach has come under fire in the recent past, typically because of the categories of backup incentives employed (violations of various amendment rights) as well as the categories of behaviors for which clients may earn tokens (employment of patients as a captive labor force). These criticisms are nicely summarized by Wexler (1973), Friedman (1975), and others. Another issue suggested by the current legal debate has to do with whether or not a treatment that is applied to some client groupings is in fact therapeutic, although as Wexler and others have pointed out, the definition of therapeutic is somewhat difficult and has generally been bypassed by the courts. In fact, given that a token economy format provides for voluntary consent and meets the various stipulations as defined by recent court decisions, the program designer is free to implement this strategy with some willing population of patients given the implicit idea that token economies do in fact produce therapeutic change relevant to some criterion environment, that is they work. As pointed out by Kazdin and Bootzin in 1972, Kazdin in 1975, and others, token economy formats do seem to provoke desirable change in whatever constitutes the

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catalogue of targeted behaviors, and while institutional administrators (for whom such programs are often designed) may be delighted that the patient population is now more responsive to staff requests or more productive in academic or vocational task completion, certain of us who have been consultants to such settings have begun in recent years to question precisely what we are hoping to accomplish in employing this strategy. Given that we can provoke certain intrainstitutional behavioral changes deemed by staff members and administrators as relevant and important, and given that we can do this quite successfully, what is our responsibility to ensure that behaviors instigated by a token economy do in fact transfer and maintain themselves when clients return to their particular communities? Within the formal behavior modification literature, this questioning has provoked some controversy (and a few studies) directed at the question: does token-instigated behavior in fact "generalize"; however the term generalization is often stated in rather nonspecific terms and the criteria by which generalization is measured varies considerably across published reports. The meager findings that we currently do have are frequently limited by the triviality of the question asked (e.g., do token-instigated behaviors maintain themselves, within the same institutional environment, for two or three weeks following the removal of such program?) or because of their lack of relevance to real world settings (e.g., the token economy is constructed in a specially designed classroom with multiple and sophisticated staff members present to train and maintain the staff member's behavior over some period of time). While I don't propose to examine the issues of triviality and relevance in any detail, I do wish to attempt to clarify what in fact should be

measured as well as to evaluate some of the literature that has been directed toward enhancing extra-institutional behavioral change.

First let's look rather critically at the concept of generalization. Of course by stimulus generalization we mean that behavior that comes under the control of particular stimuli, perhaps through a pairing of reinforced behavior with those stimuli, should generalize to similar stimuli that have not been specifically so paired. Is such stimulus generalization a reasonable goal? Numerous studies within the animal literature, as well as many laboratory investigations with humans such as those conducted by Redd (1970, 1974), Steinman (1970), and others, particularly with young children, find that subjects readily discriminate even minor changes between training and generalization probe conditions. Thus, behavior instigated by one therapist frequently does not generalize to an alternative therapist (e.g., Risley, 1968; Lovaas & Simmons, 1969). Obviously the specific characteristics of the training setting, training task, as well as category and characteristics of reinforcement delivered are among the myriad of factors present in the training environment which may not be present in the generalization environment, causing the client to make a discrimination and not respond. Given the tremendous lack of similarity along these and other dimensions between most institutional settings and the community setting to which the client will return, it is highly optimistic to expect that stimulus generalization will occur. It is unfeasible to restructure the institutional setting so that it will be like the myriad and diverse settings within which clients will be asked to function upon their release. Thus it becomes difficult to even program stimulus generalization due to the practical limitations involved. For these reasons, it doesn't make

sense to employ the term stimulus generalization or to seek its effects. In their extensive review of the literature, Marholin, Siegel, and Phillips (1976) conclude and I quote: "The available data from applied research do not clearly support the distinct occurrence of this phenomenon. In fact, it seems more appropriate at this juncture to suggest that stimulus generalization may infrequently occur; and if it does occur, its effects are likely to be transitory." These authors suggest that, in fact, it makes more sense to attempt to program transfer of training, that is the maintenance of behavior across divergent performances. Research performed within the well controlled laboratory setting or specially constructed institutional environment does suggest some mechanisms for increasing the likelihood of transfer.

Given the problems of client discrimination across the dimensions of setting, therapist, and contingencies of reinforcement, a growing body of literature suggests that agents within the community should be trained to provide systematic reinforcement for behaviors that are of relevance to their natural settings. A recent review by O'Dell (1974) summarizes the excellent work of Wahler (1969a,b), Patterson and his colleagues (e.g., Patterson, Cobb, & Ray, 1972), and others who have quite successfully trained parents within the home environment to alter the behavior of their children in directions mutually agreed upon by therapist as well as parent. While this literature is directed specifically at more normal children and adolescents, and takes place as a preventive measure prior to institutionalization, it should be noted that once a child, adolescent, or adult is admitted into an institution, such training rarely takes place. In fact, a token economy or other behavioral program proceeds as if in isolation; in a vacuum.

Parents and other agents from the community are seen only on visiting day and not employed as program participants--trained to employ program mechanisms upon the client's release back into the community. Ideally, parents and important others would be brought into the institution for training, perhaps participate directly in the client's program while still within the institution, and then be present on a full-time basis to continue relevant aspects of the program upon the client's release. My own experience in working and designing behavior modification programs for the training school environment (e.g., Nay, 1974) indicated that an array of practical as well as financial factors inhibited the involvement of extra-institutional persons in such programs. Parents, for example, were not encouraged to come to the institution as such visits were thought to increase the risk of escapes and generally were viewed as creating more work for staff members in terms of preparing for such visits. Many of the parents of residents were financially not able to make frequent trips to the institution or in many cases were unwilling or unmotivated to do so. Viewed as a rather extrinsic and foreign presence by institutional personnel, one might ask why should family members attempt to involve themselves? Given that the technology of behavior we've developed is quite successful in motivating clients within the institution to alter their behavior in certain ways, it makes sense to provide incentives to family members for actively participating in their relation's treatment program and employing some mutually agreed upon variant of it upon his or her release. Given the high cost of institutionalizing persons to begin with (the institution I was affiliated with spent some $8,000 per year for each resident), it would seem that financial incentives could be

made available to parents at a net savings per resident. Social feedback and encouragement could additionally be provided by indigenous community personnel who would continue to provide community-based training for family members in the community once the client had returned, monitor efforts, and generally stress the importance of program mechanisms. This approach, while fraught with an array of practical problems, is worthy of consideration by institutional administrators, particularly given the rate of recidivism and the financial and human costs of institutionalization.

While the establishment of training links between the institution and persons present within the community is most desirable, a variety of other approaches have frequently been employed to facilitate transfer. One major category of approach employs so-called social incentives (e.g., praise, positive-negative feedback) which is paired with token or other forms of material feedback, such that praise takes on reinforcing properties, particularly for populations of persons with little experience with this category of incentive. Wahler (1969), Lovaas and his associates (1966), as well as Locke (1969) are among those investigators who have found that praise alone would maintain important targeted behaviors as tokens or material incentives were systematically withdrawn. Obviously the idea of this approach is that praise and other forms of social feedback are in fact present within the natural setting and may thus serve to maintain appropriate behaviors upon the client's release, whereas immediate and contingent dispensation of material incentives is a rather rare phenomenon in the natural environment. Along these lines, given the ordinary rather delayed dispensing of material incentives, many investigators (e.g., Kazdin & Bootzin, 1972)

have suggested that the immediacy of token feedback be systematically reduced, with increasing delays between targeted response and token feedback incorporated with the program. In one of our studies (Nay & Legum, 1976) we employed increasing periods of delay between appropriate student behavior in the classroom setting and token reinforcement. A series of audio cassettes programmed for increasingly fewer audio cues per hour signaled token reinforcement delivered by the teacher for certain targeted events. A similar approach was recently employed by Jones and Kazdin (1975); however it should be pointed out that delay procedures have been typically confounded with other methods to increase transfer, and at present it is hard to evaluate the relative effectiveness of this approach.

The notion of scheduling reinforcement in some fashion so as to move from a continuous to some partial schedule of reinforcement has been employed as a means of increasing the resistance to extinction of responses learned within the institutional setting. Unfortunately, while the literature is very clear with regard to animal populations (Ferster & Skinner, 1957), the systematic study of scheduling with human subjects has produced rather inconsistent results. Among few studies of the effects of schedules within the token economy, Kazdin and Polster (1973) found that social interactive behavior on the part of retarded subjects was maintained much more effectively when an intermittent schedule of reinforcement was employed as contrasted to a continuous schedule. Whereas the continuously reinforced subject's behavior dropped to baseline level upon reversal, the intermittently reinforced subject's behavior was maintained at training levels at a limited 5-week follow-up period. As for other transfer enhancing

procedures, most studies that have employed schedules of reinforcement have done so within the context of an array of other procedures, so that the effects of scheduling is so confounded as to be uninterpretable at the present time.

Another strategy that would seem to be potentially useful in facilitating transfer, is to train clients to monitor their own behavior, evaluate it in terms of certain appropriate criteria, and self-reward and self-punish themselves based upon their responses. The work of Kanfer and his colleagues (e.g., Kanfer, 1970, 1975), Mahoney (e.g., Mahoney, 1972), and others suggest that an individual can develop a self-system of reinforcement, with extrinsic reinforcement coming from the environment not necessary to maintain targeted behaviors that come under self-control. Obviously the rationale here is that the environment may be rather capricious in its systematic reinforcement of appropriate behavior, and in fact, in many community settings, a variety of inappropriate behaviors are paradoxically reinforced and may be necessary for survival. By training the client in self-management procedures, he becomes less dependent upon peers and other social systems within the setting that may reinforce inappropriate behavior and the probability that certain institutionally learned appropriate behaviors will be maintained would seem to be enhanced. Very little research has attempted to apply self-management procedures to the token economy format, and the few reported examples of this approach have focused upon certain academic and social behaviors within the classroom setting. While early studies such as those by O'Leary and his colleagues (e.g., Kaufman & O'Leary, 1972) generally showed that students were able to accurately monitor their own behavior and self-determine token earnings

to maintain behavior over brief periods of follow-up, later investigations by O'Leary and others (e.g., Santogrossi, O'Leary, Romanczyk, & Kaufman, 1973; Felixbrod & O'Leary, 1973) have revealed that when longer periods of follow-up are employed, self-reinforcement does not seem to maintain appropriate targeted behavior although students can achieve high levels of reliability in monitoring their own behavior. Maximally effective ways of shifting clients from token to self-control await further investigation. Another variant of this approach is the leveled approach first reported by Fairweather (1964), in which clients are gradually shifted from extrinsic controls to intrinsic, often democratically controlled systems of reinforcement. Again, very little research has been addressed toward the leveled system, and at present the enthusiasm for self-reinforcement systems as a facilitor of transfer effects remains a possibility to be shown in a systematic fashion. Perhaps as a subcategory of this approach, clients could be trained to employ self-instructions along the lines suggested by Meichenbaum (1969) and others. The idea here is that the individual learns to direct his own behavior via certain self-instructional formats that are learned within the institution. As targeted situations occur in the natural setting, the individual then employs self-statements to guide responses made. While this approach has been shown to be quite effective in an array of clinical and laboratory settings as a means of increasing certain academic behaviors, increasing the learning of schizophrenic clients in a task situation (Meichenbaum & Cameron, 1973), and even as a means of decreasing children's fear of the dark (Spates & Kanfer, 1976), its employment as a means of facilitating transfer effects has yet to be seen.

Finally, the attribution literature would suggest that one means of maintaining behavior change is to encourage an individual to attribute his behavior to himself and not an external force or agent. The work of Rotter (1966), Davison and Valins (1969), as well as Dweck and Reppucci (1973) has suggested certain training procedures which maximize the probability that the subject will attribute behavior change to himself. One approach employs failure as well as success trails, and trains the client to realize that failure experiences are due to certain inappropriate responses that were made and thus attributable to oneself and that the individual is not helpless within the situation. As Marholin and his colleagues (1976) have pointed out, the data are currently insufficient to make any firm statements; however the exclusive employment of external agents who deliver reinforcement, training the client only in success-related procedures, and employing other extrinsic forms of control may be contrary to the goal of self-directed, independent behavior once the individual is introduced back into the criterion environment.

In conclusion, this discussion has emphasized that stimulus generalization may be most difficult to attain, given the reality of differences between the training and community environment and in fact may be inappropriate to expect. While various procedures that have been employed within the literature were discussed as a means of enhancing transfer of training, those procedures emphasizing the training of agents within the community who might serve to maintain treatment mechanisms within the community were underscored as being most likely to enhance transfer. Other procedures, designed to enhance the continuity between institution and community or provide intrinsic

mechanisms of control were suggested when it is impossible to train the parent, teacher, or other indigenous agent.

It is hoped that future research will attempt to systematically relate transfer enhancing methods employed within the institution to the maintenance of extra-institutional behavior so that more clear statements can be made regarding the utility of the various procedures so commonly employed. While the shotgun-like approach (e.g., Jones & Kazdin, 1975) which employs a variety of transfer-enhancing procedures may be the most ethically responsible approach in the light of the dearth of systematic literature, we must move beyond this kind of procedure if we are to determine what the live elements for transfer are. Only at that time can we thoroughly maximize transfer effects and perhaps relate transfer procedures to specific client characteristics and criterion environments in the community as well as other important factors. Given that multiple targeted behaviors are typically treated within the institutional setting, one logical approach would be to employ unique and divergent transfer-enhancing procedures across such targets within subjects in a counterbalanced fashion or for specified targets between subjects, measuring differential change within the community setting. While all targets receive treatment, a systematic evaluation of transfer phenomena could be achieved.

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